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THE WAR-GAME.

To any one studying the military history of England during the present century, the tendency which has always been shewn by us to adopt any improvements which, we have reason to believe, have influenced the result of the latest campaign is evident.

For years we endeavoured to supplement our previous systems by drawing largely upon the experience of the French; but the decided collapse of the imperial army during the war of 1870, to whatever cause it may have been due, deprived us of all confidence in institutions which proved so utterly worthless at the hour of need.

Some other model being required for the British army, we naturally selected Prussia, as combining in her organisation, her tactics, and her mode of instruction of her soldiers, every element necessary to insure success in any future struggle. It is true that in one point we are unable to follow her example—namely, in the enormous numerical strength of the armies which she brings into the field. In this respect, a state which can call upon every man to do military service must, of course, have an immense advantage over a nation which, like our own, makes her army enter into competition in the labour market with other trades, and which includes among the conditions of military service the certainty of exile for a considerable number of years.

This is hardly the place in which to enter upon the arguments for and against compulsory service, but every one must at least join in the wish that a conscription may never become necessary, since it has been said of Prussia that 'a Jena was necessary to make her bear' the burden. And probably we also should need our Jena to make us bear such a hardship, since, though a warlike, we are by no means a military people. We affect to despise show, and are indeed rather contemptuous of soldiers in time of peace, as being merely ornamental; this is indeed carried so far, that many people consider that to wear uniform is a sign of folly not unmixed with depravity, and that a red coat is the outward

distinguishing mark indicating idleness in the wearer. Else why have so many objections been urged by English towns against the establishment within them of depot centres, while the Irish, a truly military nation, have almost fought among themselves for the privilege of receiving 'the sodgers'?

Undoubtedly, among the many causes which together insured the success of Germany in the late war, not the least important is to be found in the excellent professional education which is given to all officers in her army.

Among the many works adopted by the Prussians for this purpose, one of the most generally known in this country is the *Kriegspiel*, or, as we call it, 'The War-game;' which we English have adopted, with some few alterations needed to make it agree with our organisation and mode of fighting; and with a view to the more careful study and the general practice of this War-game, a pamphlet, containing the Rules and Directions necessary for its use, has been issued by the War Office.

The preface of this little book informs us that the *Kriegspiel* was invented by a civilian, Herr von Reiseirtz, and afterwards improved by his son, an officer in the Prussian artillery. Further, that it was mentioned in a German military periodical as long ago as 1824, so that it is no new discovery. Again, that about twenty years ago a society was formed in Magdeburg, with the object of the study of the game, and that the head of this society was the now world-renowned Count von Moltke.

The game, thus introduced, has been much played in Prussia, and has also lately met with approval and encouragement from competent authorities in most of the other countries of Europe. The War-game is played on a map, on a large scale, of some portion of actual country, which map shews the general contour of the ground, the roads, the woods, the villages, and any other features which are likely to influence military operations. The scale used in this country is that of six inches to the mile, the Prussians using one of eight inches to the mile. In either case, the blocks of metal representing the troops are made

of a proportionate size, each covering the space of ground which the force, of which it is the sign, would occupy in reality. The metal blocks are painted of two colours—with us, blue and red—and have conventional signs marked on them, to distinguish the various arms and trains; infantry being represented by half-battalions, in line, in quarter-column, as skirmishers, or as sentries; cavalry, in squadrons, or as patrols or vedettes; artillery, in batteries, half-batteries, and divisions, with their wagons, and reserve ammunition columns. In addition to these, we find also blocks representing a company of engineers, a pontoon train, a telegraph troop, and an equipment troop; and further, others denoting the train or baggage of the army. The total of the blocks supplied to either side represent a complete *corps d'armée* of 31,000 men, with seventy-eight guns. The map on which the game is played is about five feet long by three wide, giving a space of ten miles by six for the manoeuvres. If it be proposed to use but a small force for the purpose of the game, but two players will be needed, of whom one commands the red, and the other the blue army. If, however, the whole or a large part of the given number be brought into play, it is usual to appoint one person as the commander-in-chief, others, under him, commanding divisions, the cavalry brigade, the artillery, &c. But we must not omit to mention the umpire, who is, indeed, all important, since he decides upon what is, and what is not practicable, the chance which either side has of success, and the losses suffered by the victors and vanquished.

Before the commencement of the actual contest, a general idea of the movements to be made, and of the object to be gained by such movements, is issued to each of the players. This idea is, as a rule, fixed upon on the previous day to that on which the game is to commence, in order that, by studying the map, the players may learn the nature of the ground, and judge what advantages it may afford to the attack and defence. In addition to this 'general idea,' which is common to both sides, a 'special idea' is given to the commander of each army, differing in plan as they act on the defensive or offensive; each commander being entirely ignorant of the details and orders given to the other. The blocks are then placed on the map in the positions chosen by the commanders as suitable to the object which they propose to effect.

We must here mention that where, from the shape of the ground, woods, &c. any force, or part of a force, would be invisible to the enemy, the leader of the opposing force is not allowed to see the blocks so placed; indeed, it is usual, when such an arrangement is possible, for the opponents to be in different rooms, each with his own map, on which are placed only such portions of his enemy's force as he would in reality be able to see.

The blocks having been thus posted, the advance of either side commences. The rate of marching is settled by rules, founded on actual experience, and the pieces are moved over such spaces as the men, whom they represent, could actually traverse in a given length of time. Each move is supposed with us to take two minutes; thus infantry advance two hundred paces in a move; cavalry, at a walk, also two hundred, which distance is also traversed by

field-artillery in the same time. Again, infantry advancing to an attack without firing, move faster; if firing, slower. If they 'double,' they are allowed to pass over three hundred and fifty paces in one move, but must not double more than three moves out of eight. Cavalry, again, move six hundred paces at a trot, and nine hundred at a gallop during the two minutes, but may not gallop more than two moves out of ten. The same species of regulations apply also to the artillery, all tending to make the imitation of war a fair copy of the reality; since, if infantry, for instance, had run a long distance before meeting the enemy, they would be in some disorder, much out of breath, and unfit for the actual struggle.

In addition to these rules, considerable latitude is allowed to the umpire, who, if the roads be bad, the country hilly, or there be any other cause likely to delay the march, may decide at what rate a force should be able to move. The two armies, when these preparations are completed, will probably be so placed as would occur in actual war, when, one side assuming the offensive, the other falls back into a defensive position; that is to say, the defending force will be disposed in whatever manner may best suit the ground on which it is placed, its artillery being posted so as to command the principal roads and channels of communication, and its front covered by vedettes, and by small detachments of cavalry. The attacking force, on the other hand, will advance along the roads, unless the country be so clear as to allow troops to move in the open, leaving the roads free for the artillery, and will be preceded by an advanced guard, and by small bodies of cavalry, as would be the case in actual warfare.

We may here mention that the commander-in-chief is represented in either army by a large metal block. The object of this arrangement is, that time may be allowed for the inevitable delay in the reception of intelligence and in the transmission of orders. For instance, let us suppose that the umpire allows that the vedettes of the red army can see some portion of the advancing blue force. An orderly, galloping at the rate of nine hundred paces in two minutes, is supposed to be sent at once to the commander-in-chief. If the latter be a mile distant from the vedette, this information will reach him in about four minutes; he gives his orders, which are carried to the several commanders at the same rate, reaching them, of course, at intervals of time ranging with their distance. Let us suppose the order sent to the general commanding a division which is two miles from the commander-in-chief, equivalent to four moves, or eight minutes of time. Then the total interval which will elapse between the time when the vedette first saw the enemy, and the moment of the receipt of the orders by the general of division, is twelve minutes; or, practically, the blocks representing such a division must not be moved until a period of six moves has elapsed since the first transmission of the information.

Again, if there be a field telegraph, a short message is supposed to occupy one move, or two minutes, in transmission. The attacking army will then advance on the defender's position, he making such disposal of his troops as may best suit the ground and best counteract the intention of his opponents, so far as he may be able to discover it from the movements of what troops may

be visible. When, after a succession of moves, the metal blocks representing the troops on either side are at such a distance that their fire would be efficacious, or if an attack be made by any body of troops, the mode of procedure is rather more complicated, since it is then necessary to decide which party is worsted in the fight, and also what loss is suffered by the victor and vanquished. These decisions are made by the umpire, with the aid of tables given in the appendix to the instructions for playing the game.

It is assumed that, under different conditions, the chance of success of either party will vary; in other words, that the odds for or against either body of troops change according to the circumstances under which they come into action. For example, we may quote, from a large number given in the appendix, the following: It is an even chance whether infantry can make a further advance against infantry at four hundred paces, but it is three to two against the attacking force at three hundred, and two to one at two hundred paces; and at one hundred paces the odds are three to one that the attacking force cannot advance further. Again, if three companies of skirmishers attack one battery, not under cover, at six hundred paces, it is assumed that their chances are equal; but if the infantry can advance to within four hundred paces, the odds are three to two against the battery, and at two hundred paces are two to one on the infantry. These are arbitrary assumptions, but are based on actual experience in war.

The manner in which this calculation of the odds affects the result is regulated by an ordinary die, which has, of course, six sides. If the odds be five to one on either side, one face only is favourable to the inferior force, and five to the superior. Again, if the chances be even, each army wins by the die turning up on either of three faces, and loses on the other three. Thus it is evident that the range of chances expressed by the die may vary from five to one on red to five to one on blue, or five to one against red. Such odds as three to two, or three to one, or four to one, where the total of chances is less than the number of faces on the die, is provided for by making certain faces neutral. This arrangement is shewn in a table, marked in red or blue squares, as the advantage in a throw will rest with red or blue, and further shewing the losses per battalion or squadron, which will, in case of an attack with bayonet or sabre, be suffered by the losing side; it being further stated that in a cavalry action the victors lose half as many men as a defeated, or one-third as many as a totally defeated enemy; and infantry, when engaged with infantry, in the same proportion. This table is very carefully arranged with regard to the probable effects of success in a real action. Thus, if the odds be five to one against either red or blue, and that army succeed in throwing the one face which gives success, it is not allowed to have done more than repulsed the enemy; while of the five faces of the die, three rule it defeated, and two totally defeated. Again, if the chance of success for either side be even, it is assumed that of two forces so equally balanced, neither can totally defeat the other; a simple 'defeat' or a 'repulse' are, therefore, the only results of such a combat.

A second table, marked B, gives the results supposed to be effected in one move by infantry and artillery fire: this table is divided into two parts,

'Good effect' and 'Bad effect.' Which column is to be used is left to the decision of the umpire, and depends mainly upon whether the range is correctly estimated by the players. Thus the fire of a battery of artillery, if with good effect, is calculated to produce a loss to infantry at a thousand yards of from thirty to sixty men per battalion if shrapnell shell be used from the sixteen-pounder gun: this loss also varies in the table with the gun used, the projectile fired, and the range. With bad effect, the same gun and projectile at the same range is allowed to inflict a loss of only from sixteen to thirty-six men in the same time—namely, one move, or two minutes. The lowest numbers in each case being allowed when the one of the die turns up, and the highest for the six; the rest being intermediate in their value.

Again, musketry-fire with good effect at five hundred yards is taken to cause casualties to the extent of twelve to twenty-six men per battalion; or with bad effect, six to twelve. At a thousand yards firing with good effect, no result is granted to infantry-fire unless the die turn up the five or the six, and then but one and two men per battalion are placed *hors de combat*. Thus, as far as possible, allowance is made for the varying circumstances of war, as regards the range of the various arms, and the difficulty of accurately estimating the distance of the enemy. But yet more is done to make these mimic fights resemble accurately an actual engagement, for while this table is calculated only for troops exposed on open ground and in line, it is expressly laid down that troops in extended order or under cover will suffer only one-third of the loss given in the table, while cavalry, as being more exposed to fire, are considered to incur a loss one-fifth greater than infantry. Further, if the estimate of the range for artillery be incorrect, it may be corrected in the next move; but whether infantry may also correct their range is left for the decision of the umpire. The reason of this is, that while the smoke of exploding shells shews accurately to the artillery the spot where such projectiles have burst, and they are thus enabled in actual battle to correct their range, the infantry have no such test to guide them, but are dependent entirely on their estimate of the space which divides them from the enemy.

Many other rules are also given, which we have here no space to mention, but all tend to make the conditions under which the War-game is played as close an imitation as may be possible of serious conflict.

To give an example of the mode of procedure: let us suppose that a blue battalion advances to attack a red battalion, both being on open ground, in line, at a distance from each other of four hundred yards. It is laid down that in this case the chances whether the attacking force may advance or must retire are even.

The die is thrown, and turns up three, which square in table A is coloured blue. This throw is three to blue's advantage, and his battalion may advance. Next, the losses on the move must be calculated. Given that the red battalion know the range, their fire being given while stationary, will probably produce 'Good effect.' The die is thrown, and turns up 'four.' By table B, under these circumstances, the blue battalion loses twenty-nine men in the move; while, as it is itself advancing, its own fire will probably be with 'Bad effect.' Say, it throws five. Table B shews that the red

battalion loses sixteen men in this move. Blue having been permitted to advance, can move only one hundred yards in the next move, since it advances firing. At three hundred yards the odds on the defending force are three to two. The die is thrown, and turns up 'six.' This square in table A is red, and is also marked with a T. The blue battalion is, therefore, totally defeated. The losses are estimated as before. Red firing with good effect throws 'five;' the loss to blue is forty-five men; while blue, firing with bad effect, and throwing 'two,' inflicts a loss of only fourteen men on the red battalion. Thus the result is as follows: The attack of the blue battalion is repulsed, with the loss of seventy-four men; the victors losing only thirty men.

In combats with the *arme blanche*, bayonet or sabre, a different scale is used; but our space will scarcely allow us to enter into the minute rules laid down for the conduct of every description of engagement under every possible circumstance.

A third table, C, is used to mark the losses of either side, and also the time occupied by the action. The list of losses runs up to twenty-four, the losses in infantry up to forty, which entails the withdrawal of a company from the map; a squadron of cavalry being also in the same manner considered lost when it has suffered casualties to the extent of sixty men; with the artillery, a loss of twenty-five men is equivalent to the loss of a gun. With the game are also provided scales for measuring distance in yards and paces (of thirty inches), the slope of the ground, and the length of a curve for infantry, cavalry, and artillery at various paces.

As may be supposed, the progress of the game is slow, and, at times, even tedious, especially if the umpire be not well acquainted with the rules of the game, and quick to judge of possible advantages and disadvantages, from whatever cause they may arise. His decision is at all times final, and no discussion is allowed until after the close of the game.

We have quoted but one instance, and that a very simple one, of the manner in which the rules of the game are applied; but, as our readers must be aware, war is a medley of complicated movements of various forces, the full estimation of the value of each requiring practice and great experience. It will thus be seen that the office of umpire is no sinecure, for upon him depends the more or less close resemblance of the imitation to the reality. The battle is continued by the advance or the repulse of the attacking army at various points along the line, varied by cavalry charges, and the different assaults by fire and steel, until at the last, either the defenders or the attacking forces are obliged to retire. In fact, a battle is fought out, as far as may be, according to the eventualities which might arise in war, and subject, in some way, to the same conditions. Numbers, of course, are of as great advantage in the War-game as in the field, and skill and experience in the handling of troops have their full value; yet, in many ways, any such representation can be but a poor copy of the grand original, since, for instance, no allowance is made for the courage or morale of the troops; with tin blocks, one is as good as another, and the old boast, that one Englishman can beat three Frenchmen, falls to the ground. Again, all subordinate officers are

assumed to be equally good, and no account is taken of the very different value of the various troops which unite to make up the total of a large army. Soldiers cannot in truth be treated as machines; defeat crushes them, as victory incites them to dare more; and probably it may often be the case that men will fight and win, under circumstances which, in the game of which we write, would justify the umpire in declaring them totally defeated. Yet, as to the use of the game, there can be but little doubt but that any scheme which enables soldiers, who have a taste for their profession, to work out mighty questions in tactics, to judge quickly of advantage gained or lost by certain events and movements, to gain a fair idea of the space occupied by troops, and the time necessary for moving them, must be of great advantage to any army; and above all to ours, which is, for many reasons, debarred from actual practice of manœuvres in the field, except in small bodies, and thus runs great risk of gaining little instruction, either practical or theoretical, of its duties and power as a combined whole.

That the War-game, as a game, is ever likely to become popular, is open to much doubt; but all who have studied the matter will at least confess that it is superior, both in amusement and instruction, to the plans, confused with red and blue armies, which we have been used to connect with accounts of recent tactics. It has at least this in common with war, that, while the element of chance is not wanting, skill and numbers must always in truth decide the contest. That the War-game will ever make a Wellington or a Napoleon, is beyond doubt hopeless; but it will at least enable us to raise and encourage a taste for their profession among the officers of the army, which may stand them in good stead, if we are ever called upon to make war again upon nations more civilised than Chinese or Hindus.

MURPHY'S MASTER.

CHAPTER IX.—THE CABIN PASSENGERS.

'MR KAVANAGH on board! That is incredible,' exclaimed Robert.

'I can't help that,' returned Maguire; 'I can only repeat that it is the fact. I saw him with my own eyes to-day. I think I may even promise that you shall see him with yours to-morrow.'

'But the police'—commenced Chesney.

'Oh! you believe in the police, do you?' interrupted the other contemptuously, 'and yet talk of things being "incredible." For my part, I have been in a ship before in which there was "one too many" on board, and that was "the devil" himself. The present incident, therefore, sinks into insignificance.'

It was certain that Mr Maguire was not joking; he never did joke, after the fashion of his compatriots, but used a certain staidness of speech and manner, sometimes, as in the case of the police galleys, diversified by ferocity.

'You are wondering who I am, young fellow,' continued he, 'and since I have promised to satisfy a reasonable curiosity, I will tell you. I would not tell everybody, mind you (nor even you, for that matter, if we were not well out in the blue water); but you are a lad of spirit, and I like you.

With your wits and pluck, you would make a figure in the world, if it was not for your slavish respect for people in high places.'

'I was not aware that I entertained a slavish respect for any man,' answered Robert, somewhat haughtily, for his youthful pride was touched.

'Nevertheless, it is so,' continued Maguire coolly. 'You are frightened at the very shadow of so-called authority; any Jack in office has only to cry out: "In the king's name," and you dare not lift your voice against him, far less your finger. Yet kings, and such-like, would have no existence but for the dullness of mankind. It pleases the great mass of the world to make-believe to worship stupidity, and to exalt it above independence and energy; for then let the clever fellows do their best, they can never get to the top of the tree.'

'I think I see what you mean,' said Robert thoughtfully; 'yet what is the feeling towards the young master, as they call him, by which our friends down yonder—he pointed to the deck below—are actuated, but this same worship of an accidental distinction? What is the possession of "the old blood" but an accident of birth?'

'Quite true, my young friend. You might have even added (had you known it), "How is it that you yourself are called "Mister Maguire," when there is no difference of present fortune between yourself and the poorest of your companions, but only that once upon a time your father held a bit of the land which he inherited by no merit of his own?" Well, the explanation of it is easy: these poor fellows are a parcel of fools.'

'Perhaps,' observed Robert, shrugging his shoulders; 'still, there must be something in it. Murphy, for instance, would lay down his life for the young master.'

'Very true; but that is because Murphy is the greatest fool of them all. Now, I like "the young master," as they call him, too, and would go as far to serve him, perhaps, as any of his poor besotted idolaters; but then I like him for his own sake. He is a fine fellow, and might have gone far even in his own country at one time, only luck was against him. Now, Murphy would admire him just the same if he were a miser or a coward, such as Louis was.—By-the-by—here the speaker looked at his companion with great significance—'do you know about Louis?'

'I think I have heard it said that he was dead,' said Robert, 'that is all.'

'Ah, well; then that is enough. We are already getting out of our reckoning. I promised to tell you something of my own life, which has nothing to do with Mr Louis Kavanagh's death, poor fellow.—My father was a squireen in Tipperary, as his fathers had been before him for many a generation. It was very creditable of them to go on succeeding their ancestors so regularly, and getting drunk in the same parlour with such assiduity; but life of that sort was too respectable for me, and on the occasion of a certain domestic difficulty (we were both wrong, and very drunk), I cut the paternal cable, and ran away to sea.—You ran away from home yourself, young fellow, did you not?'

'I did,' said Robert gravely; 'but it was to avoid my step-father's ill-treatment.'

'No apology is requisite to me, my lad,' said Maguire frankly. 'I like a lad that runs away from home. What are ease and comfort at that age, compared to independence?'

'Nay, pray do not imagine that I left them when I left my home,' explained Robert. 'It was but a cottage, and my step-father but a gamekeeper.'

'Then where did you learn your fine words and your good figuring?'

'At the village school. It seemed to me that learning was the only thing that could get me out of a condition that was very unpleasant, and so I worked hard at my books.'

'Ah, that's bad,' observed Mister Maguire deprecatingly. 'I don't mind a young fellow's learning to read and to write, and even a little arithmetic, which I have myself found useful at a pinch—but I am dead against books. They disincite you to action. At this moment, instead of saying to yourself: "Here is a man of spirit and experience, whose views must needs be worth something, and I'll follow his lead," you are wasting time in thinking about it. "Will it be prudent to do so?" is the idea that occurs to you, or even (if they taught you out of good books), "Will it be right?" Now, it is one excellent point in the character of our good friends below here, that they never think.'

Not a muscle of Mr Maguire's countenance moved, save those employed in the suction of his pipe. It was impossible to tell by the expression of his face whether he was in jest or in earnest. 'However, let me go on with my story,' he continued. 'I went to sea as a cabin-boy, and in twelve years' time—when I was seven-and-twenty—I found myself the captain of a ship. It was but a small one, indeed—a sloop called the *Mermaid*, with but very few hands on board, but I was proud enough of being her skipper: she was laden with oil from Barbadoes, and we had not long left the place, when we fell in with a strange sail. She shewed no colours; and as she drew nearer, I made her out to be a schooner, full of hands all in white shirts, and with a whole tier of great guns.

'Where does this sloop belong to?' hailed she.

'To London,' said I; 'from Barbadoes.'

'We know that,' was the answer. "Send your master on board."

'And a black flag flew up to her mast-head. That was thirty years ago, and yet I remember that moment as clearly as though it happened yesterday. One doesn't fall into the hands of pirates every day. Notwithstanding my alarm, I felt it hard to keep my temper (which was always short), when the captain called out, as we were making the best haste we could in our little boat towards his ship: "*Pull faster, you speckled-shirted dogs* [as though we would not have worn white ones, if we had known of his preference for them], *or I will drub you within an inch of your lives, and that inch too*. But I knew better than to answer; for when your hand is in the lion's mouth, says the proverb, get it out as easy as you can. Only I made up my mind, that if the worst came to the worst, I would take that gentleman round the waist and jump into the sea with him, at anyrate.

'And who are we, think you?' said he, when I got upon deck.

'Sir,' said I, "I believe you are gentlemen of fortune belonging to the sea."

'Nay, there you lie,' said he, "for we are pirates."

'For though, like most people in authority, he was inclined to give himself airs, this gentleman was very plain-spoken. He asked what I had on board my ship—warning me at the same time that

a lie would cost me my life—and was very dissatisfied when I told him. It seemed to me, indeed, that the time had almost come for his taking that leap with me into the sea, the satisfaction of which I was fully resolved not to deny myself; but, fortunately for us both, it seemed he had not the absolute disposal of life and death in his own hands, but must needs consult the ship's company.

'In the meantime, I was sent down to his cabin to await the result of their deliberations. While there, one of his men came in, and with a friendly countenance, said: "So you don't know me, Mr Maguire?"

"No," said I; "I have not that pleasure."

"Then he reminded me that he had served in the same ship with me five years ago, as likewise two other of his companions had.

"We three wish you well," said he; "but it is unfortunate that the *Mermoid* has so little in her, which makes the others bitter against you. Now, what we shall propose—since they are for shooting you—is to make you one of ourselves; for there is not a man on board of us who can keep accounts, which we know you can do. So I have come down to bid you have no hesitation, in case you get the chance of such an offer—not without risk to myself, let me tell you, but one should stand by an old shipmate."

'I thanked him heartily, and said, what was very true, though piracy was not to my taste, a bullet through the head was much less so; and in the end it turned out as he had given me to hope. I was made purser of the *Mother Carey*, as their vessel was called, that very night, and shook hands with the captain upon it (instead of kissing them, as when the king gives you anything), and with all the crew. Moreover, they brought in a huge bowl, made of solid silver, which held eight quarts of punch, and drank until sunrise to my new appointment—a most undesirable one, you are doubtless thinking, my friend, and so thought I at that time. With the exception of the three men that had saved my life, I had no desire to see any one of my present companions again, unless it should be at some place of execution; but one's opinion changes upon many things in this world, and I have been on board worse ships, and mated with worse crews, than that of the *Mother Carey*.'

'But how long were you on board of her, before you had an opportunity of escape?'

'Well, really,' said Maguire, sucking slowly at his pipe, and regarding Robert with a sort of comical grin, 'I can't quite say as to the opportunity of escape, but I was with the *Mother Carey*—or, at all events, with her chickens, for she went to the bottom the next cruise—for about twenty years. But there, it's getting late, lad, and time to turn in, so I'll finish my yarn another time.' And with that he rose, knocked the ashes out of his pipe, and with a nod at his petrified young companion, descended gravely into the steerage.

Twenty years the companion of pirates! It was clear, even to the inexperience of Robert Chesney, that no man could be among such persons for such a length of time, and yet not of them. 'Misther Maguire,' then, who enjoyed such respect below-stairs, and with Murphy, and who even associated on familiar terms with Mr Denton himself, had been in his time 'a gentleman of fortune,' as he had delicately put it, 'belonging to the sea!' This was sufficiently astounding, of course, but it

was not absolutely shocking to the feelings; for, in the first place, the whole story might be untrue—'only a yarn,' as the narrator himself had termed it, spun to beguile an idle hour, or to impose upon his own (Robert's) credulity; and secondly, if it was true (and indeed he believed it to be so), the circumstance had happened so long ago, and was so much out of the pale of ordinary experience, that it was robbed of its more offensive features. Piracy, as Robert understood, was a thing of the past; and this strange fellow-passenger of his must have been one of the very last of that now legendary race, whose hand was against every man, and every man's hand against them. This Maguire (who, moreover, had some good points about him—or, at all events, points that were attractive) was, after all, to be regarded more as some marine monster, so rare that it is more an object of curiosity than of loathing or alarm; or as some antediluvian animal, supposed to be extinct, whom nobody would now wish to destroy, even if it still was a little dangerous, but would rather preserve and make much of, as a solitary specimen of what had once existed.

What doubtless strengthened these liberal views in Robert, who was certainly not without good principles, was the powerful interest that the relation thus suddenly broken off had excited in him; he wanted, it must be confessed, to hear the conclusion of the matter. Moreover, the confidence that had thus been reposed in him—for it was reasonable to suppose that Maguire did not shew everybody this strange leaf of his own history—was a compliment to his good sense as well as his sense of honour. It was evidently not expected that he should tell this wonderful story all over the ship, as many lads of his age would have hastened to have done. He did not see that what was a compliment to his prudence was paid at the expense of his sensitiveness to the claims of justice and authority; that it must also have not been expected that he would be so shocked at the revelation as to denounce the author of it. He lay awake half the night thinking of the *Mother Carey*, and dreamed of a 'speckled-shirted dog,' who was, however, in his dream but a retriever; and not until the morning—so wholly had the greater wonder absorbed the lesser—did he remember what Maguire had told him of Kavanagh's presence on board the *Star of Erin*. If that was true, it was only a few steps more of improbability to be surmounted to believe the strange story his companion had told about himself. The greeting that Maguire gave him the next morning was more brief and commonplace even than usual, being confined to a careless nod, so that at first Robert was inclined to think that the other had repented of his confidence of the previous evening. When noon had arrived without his receiving any communication, he got very impatient, and even irritable, for it struck him that he had been made the victim of a practical joke; but after dinner, Murphy came to him with the information that Mr Denton wished to see him on a matter of importance.

'He is better, then?' observed Robert, careful not to exhibit his own state of expectation—for though it was certain that Murphy must know any secret connected with his young master that Maguire knew, he thought it well to shew himself worthy of the latter's confidence.

'Yes, he's better, but still in his berth; and the

light hurts his eyes, so you must talk through the curtain.'

When Robert knocked at the cabin-door, it was certainly a stronger and more healthy voice that bade him 'come in' than he had expected to hear; and he found Mr Denton, though still confined to bed, very different in appearance from what he had expected. Not only was he far from looking like a sick man but lately *in extremis*, but even better than when he had seen him in Herne Street.

'Sit down there, Robert,' said he, pointing to a seat beside his pillow, but separated from it by the curtain which was drawn round him, 'and tell me about the boys.'

Robert made his report; to which the other seemed to listen attentively, and then expressed his high approval of what he had done.

'With Mr Kavanagh away, and myself ill,' said he frankly, 'I don't know how we should have got on without you. I hope you find your own position comfortable on board, as I am sure it deserves to be?'

'Yes, thank you, sir.'

It seemed ungrateful to say to this kind old invalid: 'But the promise that you made to me has not been kept with respect to one thing—that Mr Frank was to come with us.'

'And did you write home, as I told you, and bid your pretty sweetheart reply to you at Liverpool?'

'I wrote home, sir, and got an answer,' replied Robert a little stiffly. Mr Denton was not his patron, and this light allusion to his Lizzie seemed unjustifiable. Moreover, there was a movement of the curtain which suggested that his companion might be laughing at him—rather heartily for a sick man.

'And what did the young woman say, Robert?'

'Well—she sent me but ill news, sir; but such as it was, it only concerns myself and her. If Mr Kavanagh had asked me, it would be different, but you must excuse'—

There was a chuckle from the bed; the curtain was drawn suddenly back, and, to Robert's intense astonishment, revealed Mr Frank Kavanagh himself, just as he had seen him on the morning after their adventure, except that he had a smoking-cap on his head, which he wore, perhaps, by way of night-cap!

'There goes my scalp,' cried he, flinging the gray wig which had so long concealed his own curling locks, against the cabin wall, 'and Mr Denton with it, though, you see, he has kept his word with you, after all.'

Robert took the hand that was extended to him in all sincerity; he was delighted to find himself once more face to face with his friendly patron; but his prevailing idea was still that of astonishment at the means that had secured this incognito.

'So you were Mr Denton, were you, all along, sir, and Mr Wilson as well?'

'Yes,' returned Kavanagh gravely; the gay tone and the smiling look both vanished—swept away, as Robert judged, by the tender memory which the latter *alias* had evoked—'yes. There were reasons—political ones—why I lived in Herne Street, under a feigned name.'

'And when the police came on board, they never found you out neither! You should have seen them on deck, sir, scrutinising us all, and feeling the hair of our heads, though why they did that I cannot imagine.'

'Nor any one else, I should think,' said Kavanagh, forcing a laugh: 'they were not very sagacious, truly, but they were very civil. The inspector apologised for disturbing so confirmed an invalid as myself.—But enough of that: I wish to know of your own affairs, Robert. What of your sweetheart, and her ill news? Can she not reconcile herself to your leaving her, and taking so long a journey? Well, that is only to be expected.'

A sigh followed Kavanagh's words: Robert felt even more certain than before that what had so suddenly turned his impulsive patron's mirth to melancholy was the remembrance of pretty 'Miss Mary.'

'No, sir; it is worse than that;' and he told him of the troubles which Lizzie's letter had disclosed to him.

'Well, well,' said Kavanagh cheerfully, 'we need not be afraid that a good-looking lad like you will be cut out by your step-father; but the poverty and the poaching are real misfortunes. What a pity we could not have brought the whole family out with us.'

'Yes, indeed, sir; that is what I had in my mind when we were at Liverpool,' answered Robert. 'If I had known who you were, I think I should have plucked up courage to ask you that great favour, notwithstanding all the obligations'—

'Tush, tush!' interrupted the other kindly; 'don't talk of them. Without a treasurer and comptroller such as you have proved yourself to be, we could never have got on as we have. Even Murphy allows that. No, no; the debt is quite on the other side. As for your friends trying their luck in the New World, they can do that still; and it is much better that they should follow you when you have got settled somewhere, than help to swell the number of our incapables. If money is wanting for their passage, I will let you have it—advance it out of your salary, if you are too proud to take it as a gift. There, there; that is settled, so no more words about it.'

It was no longer a wonder to Robert that 'the boys' should have such reverence for their 'young master,' for he felt himself as though he could have laid down his life for his sake. It was not only gratitude which affected him; there was an indescribable charm in Kavanagh's tone and manner that was wholly removed from the lad's experience, and almost seemed to him to belong to a superior being; it was not patronage, and it was not friendship, but it had the grace of the one, and the tenderness of the other.

'Indeed, sir, you overwhelm me with kindness,' was all he could answer; 'and I only hope I may shew myself'—

'Yes, yes, we shall always be good friends, Robert,' interrupted the other; 'I am sure of that. And now about the boys—I mean *my* boys. Are they under the belief that I have forsaken them, or have they more faith than some people I could mention?'

'Well, sir,' replied Robert apologetically, 'they are still too sick to be very urgent about anything else, and besides, they don't see why you should not step on board any day from some island or continent.'

Kavanagh laughed, but there was a touch of pity in the tone in which he replied: 'Ah! yes, that is likely enough. They know nothing but what the

priest tells them, poor fellows!—then added still more gravely: 'and perhaps the greatest proof of their simplicity is their belief in myself.'

Here, somewhat to Robert's relief—for Kavanagh's voice had sunk so low that his companion scarcely knew whether this last observation was intended for his ear or not—there was a knock at the cabin-door, and Murphy entered, which put an end to further confidential talk.

CHAPTER X.—THE CLOUDS GATHER.

The next time Maguire met Robert, his quick eye detected a difference in the lad's expression. 'Ah!' said he, 'you have seen him, I perceive. Did I not tell you the truth?'

'Yes, indeed,' answered Robert. 'But you must allow there was some cause for incredulity. Surely, nothing could be more unlikely than the whole affair.'

'To you, perhaps not,' answered Maguire. 'But as for me, I am too old to be astonished at anything. Besides, I have seen a much stranger thing in the way of "keeping quiet" on board ship.'

'Then that must have been on board the *Mother Carey*,' said Robert smiling.

'Well, lad, it was so.' He, too, smiled good-naturedly enough, for he saw that the lad was greedy to hear more of that adventure; and lighting his pipe, and sitting down under the bulwarks as before, proceeded to gratify him.

'The story of my life would weary you, and, besides, some of its incidents might prove a trifle too strong for your stomach. But what we have just been saying, reminds me of a curious circumstance. While I was perforce a member of the pirate crew, they met with some hard knocks, for it is not every ship that gives up to the black flag without a tussle; and next to Captain Grim himself (as he was termed, for neither he nor his men were particular about preserving their real names), the greatest fire-eater amongst them was a good-looking young fellow called Galley. He was not a general favourite, because he kept himself to himself, and did not drink much; but his bravery made him respected. I well remember his resenting some innuendoes of the mate, with respect to his sparing the punch, in order that he might win at cards, one night, by throwing the whole bowl of liquor over him, and the duel that took place in consequence. When any of the crew quarrelled, it was not permitted to fight on board, but they were put out on the first land we came to, and there settled the matter with sword or pistol. The way in which young Galley polished off the mate with the sharp steel in half-a-dozen cuts, was a very pretty sight, nor have I ever seen a man of his age so dexterous with that weapon. Whenever we met a bigger ship than we liked the look of, and it was a question of flight or fight, he was always for fighting; and sometimes, when we have been chatting together, just as you and I are now, he would express himself with respect to his own trade in the most truculent manner. Being only a sort of amateur myself, I was allowed to have my own opinion about piracy, and I ventured to tell him that it seemed to me to be an unsatisfactory sort of life, especially as it had for the most part a noose of rope at the end of it. "And quite right too," said he: "if it were not for hanging us pretty fellows, every cowardly

scoundrel would turn pirate, and so infest the seas that men of courage would starve. The ocean would be crowded with rogues, like the land, and no merchant would dare venture out, so that our trade would no longer be worth the following." Well, when the *Mother Carey* came to grief, and her chickens were lodged in jail, previously to having their necks wrung, an appeal was made to the court on behalf of Galley, such as astonished me more than if the honest fellow had played booty, and turned king's evidence: his defence was, that he was a *young woman*. And as one of the gentler sex, supposed to be incapable of piratical conduct—and also being very good-looking—the judges acquitted her on that plea. And now you will easily understand, my friend, how the fact of Mr Kavanagh's turning out to be Mr Denton does not appear to me so very extraordinary. You may think that one of us, at all events, was cognisant of Galley's sex, for whose sake, perhaps, he might even have assumed the masculine garb; but this was certainly not so; and, indeed, the sixth article of our regulations (which were common, I believe, to all the fraternity) ran as follows: *If any man is found carrying a woman to sea disguised, or even conniving at such an act, he shall suffer death.*

'You had laws, then, it seems, like honest people!' observed Robert.

'Most certainly. We had Articles of War, some of which, at least, were as strictly observed as on board of a king's ship, and to which every man had to subscribe; and I did so myself (though of course under compulsion). There were ten (if I remember right) in all. Number one established universal suffrage: *Every man had an equal vote in affairs of moment; an equal share of the fresh provisions and strong liquors, at any time seized, and might use them at pleasure, unless a scarcity (no uncommon thing with us) made it necessary to vote a retrenchment.* Number two referred to public property, in which, *if any man defrauded his companions, if it was but the worth of a dollar, he was marooned* (that is, set on the first desolate island we might come to, with a gun and a few charges of powder and shot, and a bottle of water, to perish of starvation). *If the robbery was only between one another, the offender had his ears and nose split, but was not marooned.* The third article was directed against gambling, and was by no means scrupulously observed. The fourth commanded *candles and other lights to be extinguished at eight o'clock; and if any of the crew after that hour were still inclined for drinking, they were to drink on the open deck.* The fifth related to keeping the cutlasses and pistols clean and fit for service, and was the most popular of all. The men were extravagantly nice in the beauty and richness of their weapons, and would give sometimes at an auction (at the mast) as much as forty pounds a pair for pistols, which they wore in time of service slung over their shoulders, and adorned with ribbons. The sixth article I have already quoted. The seventh decreed *death to any man who should desert the ship or his quarters in battle.* The eighth was to arrange quarrels. *There was to be no striking on board, but (as I have said), at the nearest convenient spot, the disputants were landed, and placed back to back at twenty paces. At the word of command, they turned and fired immediately, or else the piece was knocked out of their hands. Then, if both missed, they came*

to their cutlasses, and who drew first blood was held the victor. The ninth enacted that no man should talk of breaking up their way of living until each had cleared a thousand pounds. But if any man should lose a limb or become a cripple in the public service, he was to have eight hundred dollars out of the common stock, and for lesser hurts proportionally. The tenth and last article provided that the captain and quartermaster should receive two shares of a prize; the master, boatswain, and gunner, one share and a half; and other officers, one and a quarter.'

'Then there were persons in authority, as well as laws among you?' remarked Robert, not forgetful of Mr Maguire's anarchical opinions of the previous night.

'Yes, there were; nor do I deny that such institutions are necessary. Nevertheless, so far as government was concerned, the *Mother Carey* was, I contend, a model vessel; nay, there is no doubt, looking at the matter as a commercial speculation, that, with ordinary prudence, any man on board might have made his thousand pounds twice over! The law against drunkenness, however, and gambling was almost a dead-letter; and the captain, as you may judge from my own case, was unnecessarily brutal.'

'Was he cruel to others as well as yourself, then?' inquired Robert.

'Yes, indeed. I have known him make a poor skipper, in whose cargo he was disappointed, eat his own ears with pepper and salt! He had not the headpiece for a captain; and that is what I complain of in other societies, that men who are altogether unfit for it are trusted with authority.'

Robert was too horrified with the incident of the skipper's ears, to pay much attention to this philosophical observation; but it did not escape him that Mr Maguire was very charitable in his views with respect to piracy, and seemed inexplicably desirous to make his listener a convert to them. At that time, however, he did not think very seriously of the matter. Mr Maguire still appeared to him in the light of a *lusus nature*—a being to excite wonder rather than apprehension. He did not reflect that representations of exciting adventure, and wealth easily come by, although they had no influence upon himself, might have their weight with more ignorant and impulsive hearers; that the spark which falls innocuous on the hearthrug, will set a heap of shavings in a blaze.

'You think, then, that if you had had a wise man instead of a brute for captain, you would have made an excellent speculation of the *Mother Carey*,' observed Robert drily; 'and that each of the crew might have retired from business upon a handsome fortune?'

'Yes, I do,' said Maguire boldly. 'If I had not been an ass at that time, I might now myself be a rich man, for that matter.'

'They gave you a share of their gains, then, though you were but an amateur?'

'Of course they did; why the deuce should they not?' answered the other, so naively, and even indignantly, that Robert refrained from putting the inquiry that had suggested itself, as to how Mr Maguire had reconciled it to his conscience to partake of such ill-got spoil. 'Yes, I could have made my fortune,' continued he, 'had I had the head on my shoulders which I carry now; while Captain Grim, drunkard and gambler as he was, used to boast of his twenty thousand pounds laid

up in some place, which he was wont to say "only himself and the devil knew of; and the longest liver should take all." His weakness was drink,' continued Mr Maguire, in a deprecating tone; 'under the influence of which he became just what all men in authority become who have no right to their high places—tyrannical. I shall never forget his firing a brace of pistols right and left under the dinner-table one night among us all, "in order," as he explained, "that we should not forget who he was." We fined him eight hundred dollars, however, for breaking the mate's leg with one of the bullets, so that it was an expensive shot.'

'Then it must have been rather dangerous work to be even pursuer on board the *Mother Carey*?' remarked Robert.

'Oh, that was nothing,' answered Maguire coolly. 'I've—that is, I have known a man on board that ship to stand in the powder-magazine during an action in which we were likely to get the worst of it, torch in hand, with orders from the captain to send all to blazes, in case things went the wrong way.—But here's one of your sheep from the steerage in search of his shepherd.' And leaving Robert with one of his many charges, who happened to come up at that moment to make some complaint respecting rations—he had forgotten for the tenth time to bring his pannikin and other utensils on deck to receive them, and the steward had poured rice, oatmeal, and flour, peas, sugar, and tea, into one paper-bag, in a rage—Mr Maguire sauntered away. It struck Robert that he was glad to do so; that he had spoken rather more freely than he had intended to do respecting his own share in the proceedings of the crew of the *Mother Carey*, and this idea was strengthened by the fact, that he made no further allusion to that vessel of his own accord, and was chary of doing so even when interrogated concerning her.

The *Star of Erin* pursued her voyage upon the whole most favourably; there were storms and calms, of course, but for the most part she had fine weather, and there was little to complain of save the tediousness inseparable from life on shipboard. Notwithstanding what has been sung of it, this is a very prosaic state of existence; on sea, one day is more like another than it can possibly be on shore, even in the most unvarying of households. The smallest details assume a gigantic importance. The sight of a shoal of porpoises, the catching of a shark, the speaking with another ship, are events to be remembered, because they are the only ones. The sunsets of the tropics are gorgeous, but there are times when the sun is not setting, and, to say the truth, 'the boys' did not, as a general rule, appreciate it even when it did. Some of the women made themselves useful in cooking, and mending, and washing clothes; but the men did nothing; when they were not listening to Mr Maguire's yarns, of which they were very greedy, they lay on deck and slept all day, then went below, and slept again—a mode of existence which suited them very well. Robert had his duties, such as they were, to occupy him; he borrowed a few books from the captain, of whom he was a great favourite, and devoured them word by word; and had always by him a letter for Lizzie, ready for any homeward-bound vessel that might volunteer to be their ocean-postman. But the time hung heavily on his hands. How differently would it have passed (thought he) if he could have had Lizzie for

a fellow-passenger! how differently it *would* pass when she had once joined him in the Underworld! His letters were full of that bright prospect, we may be sure.

When they had been about two months at sea, an incident happened to vary the monotony of their existence. Mr Kavanagh emerged from his cabin in his own proper character. The enthusiasm among the tenants of the steerage was immense, yet not so great as it would have been, had his presence on board been unsuspected: one by one, 'the boys'—that is, his own Tipperary boys—had been of late admitted into the secret, and these had told the rest. But even as it was, the turmoil and excitement were something startling. There was not only joy that the young master was among them; there was also triumph because a victory had been obtained over the law. The crew, indeed, were comparatively indifferent about the matter, but they formed but a small portion of the population of the *Star of Erin*. The captain, as Robert could not but remark, not only did not share in these manifestations of delight, but shewed some signs of displeasure. This might be accounted for by the fact, that he had been imposed upon—used as a cat's-paw by Kavanagh—for it seemed he had himself been ignorant hitherto of the identity of that gentleman with Denton; but, at all events, so it was. The steerage passengers were exceedingly uproarious that night, having had liquor supplied them by Murphy; and Robert remained on deck until a late hour, in case his services might be required amongst them. While thus keeping voluntary watch, the captain came up and spoke with him on the matter, and his manner seemed uneasy; they both agreed that to give liquor in such abundance to so excitable a throng was most injudicious: it might have been fancy, but, in the moonlight, Robert caught sight of something gleaming in the captain's breast-pocket which looked very like the butt of a revolver.

THE MIDDLE AGE OF DICKENS.*

WHEN we last parted from Charles Dickens in Mr Forster's company, he was thirty years of age, and had just returned from his first visit to America. Even at that early age, he had become by far the most popular writer of his time; and yet his popularity at that epoch was as nothing to the universal admiration with which he was fated to be regarded, very literally, from the crown to the cottage, before his career was closed. His impulses, though ever good and generous, had hitherto been the chief motive-power of his writings; but from this period he took a larger and deeper view of his own responsibilities. In almost everything that he hereafter took in hand there was an underlying purpose, which, whether as a matter of mere art it was an advantage or otherwise, did without doubt disclose itself to its readers, and win them to it and him in a totally unexampled manner. We have all read *Martin Chuzzlewit*, and those of us who have hearts have been especially touched by that portion of it which narrates the experiences of Mark Tapley among his fellow-travellers in the steerage. The characters of these poor passengers were, it is needless

to say, sketched from the life; and this is what Dickens has to say of them, not in a book to catch the favour of the world, but in a private letter to his friend, containing, as many others of his letters do, passages 'as attractive as any in his writings,' and even more tender. 'Cant as we may, and as we shall,' he says, 'to the end of all things, it is very much harder for the poor to be virtuous than it is for the rich; and the good that is in them shines the brighter for it. In many a noble mansion lives a man, the best of husbands and of fathers, whose private worth in both capacities is justly lauded to the skies. But bring him here, upon this crowded deck. Strip from his fair young wife her silken dress and jewels, unbind her braided hair, stamp early wrinkles on her brow, pinch her pale cheek with care and much privation, array her faded form in coarsely patched attire, let there be nothing but his love to set her forth or deck her out, and you shall put it to the proof indeed. So change his station in the world that he shall see, in those young things who climb about his knee, not records of his wealth and name, but little wrestlers with him for his daily bread; so many poachers on his scanty meal; so many units to divide his every sum of comfort, and further to reduce its small amount. In lieu of the endearments of childhood in its sweetest aspect, heap upon him all its pains and wants, its sicknesses and ills, its fretfulness, caprice, and querulous endurance: let its prattle be, not of engaging infant fancies, but of cold, and thirst, and hunger: and if his fatherly affection outlive all this, and he be patient, watchful, tender; careful of his children's lives, and mindful always of their joys and sorrows; then send him back to parliament, and pulpit, and to quarter-sessions, and when he hears fine talk of the depravity of those who live from hand to mouth, and labour hard to do it, let him speak up, as one who knows, and tell those holders-forth that they, 'by parallel with such a class, should be high angels in their daily lives, and lay but humble siege to heaven at last. . . . Which of us shall say what he would be, if such realities, with small relief or change all through his days, were his! Looking round upon these people: far from home, houseless, indigent, wandering; weary with travel and hard living: and seeing how patiently they nursed and tended their young children: how they consulted ever their wants first, then half supplied their own; what gentle ministers of hope and faith the women were; how the men profited by their example; and how very, very seldom even a moment's petulance or harsh complaint broke out among them: I felt a stronger love and honour of my kind come glowing on my heart, and wished to God there had been many atheists in the better part of human nature there, to read this simple lesson in the book of life.'

For the poor, indeed, Dickens was ever an eloquent pleader, and their most earnest apologist, but never their patron: he respected them too much for that. And again, though never was a truer philanthropist, he would not join hands with those who imagine that they can take away from men debasing pleasures without substituting any in their place. The Total Abstinence party, for instance, seem to imagine that drunkenness is a vice inborn, incident to the poor more than to other classes, and that the gin-shop is the Alpha

* *Life of Charles Dickens*. By John Forster. Vol. II. Chapman and Hall.

and Omega of the whole matter. The causes that really lead to it are left out of their calculations, and they imagine that by cutting at the top of the Upas tree, instead of its deep and clinging roots, they can effect a clearance of it. Now, it was Dickens' view that those strong measures which the temperance folks would advocate against the gin-shop should be used against the temptations that lead to it, and the miseries which render it a temptation. 'Foul smells, disgusting habitations, bad workshops and workshop customs, scarcity of light, air, and water, and the absence of all easy means of decency and health,' he reckoned among the chief physical causes; and among the mental, 'the weariness and languor of mind' induced by the above; 'the desire of wholesome relaxation, the craving for some stimulus and excitement, not less needful than the sun itself to lives so passed; and last, and inclusive of all the rest, Ignorance, and the want of rational mental training, generally applied.' It is useless to talk of doing away with drunkenness, when, by contrast with his squalid home, a gin-shop seems to the poor man a palace, and while he has no other pleasure *but* drink to which to betake himself. In one of Dickens' excellent speeches on this subject (at the opening of the Manchester Athenæum), he protests against the danger of calling a little learning 'dangerous,' and speaks of the consolation and blessing afforded by it to men of the lowest estate and most hopeless means: 'watching the stars with Ferguson the shepherd's boy; walking the streets with Crabbe; a poor barber here in Lancashire with Arkwright; a tallow-chandler's son with Franklin; shoemaking with Bloomfield in his garret; following the plough with Burns; and, high above the noise of loom and hammer, whispering courage in the ears of workers I could this day name in Sheffield and Manchester.' In all his schemes for the amelioration of the toiling millions, Miss Coutts (as she then was) was a most ready and powerful helper. 'She is a most excellent creature, I protest to God,' he writes; 'and I have a most perfect affection and respect for her.'

No one in his senses, however, could doubt of the genuineness of Dickens' sympathies with the poor, even though there are some who think he praised them to extravagance; but of his 'republican notions' (as the contemptuous phrase goes) many have expressed themselves with alarm. Let us read, then, what (writing from Philadelphia in 1868) he has to say about the American political system. 'I see *great changes* here for the better, socially. Politically, no. England governed by the Marylebone vestry and the penny papers, and England as she would be after many years of such governing; is what I make of *that*.' Of course Charles Dickens was a very 'advanced' liberal, but he never reached that point from which persons of the other way of thinking too often start, whence nothing looks to be wrong, if done under the political system of which they generally approve. He was in no sense a partisan, but judged matters upon their own merits, independently of what system might have brought them about. Of his deep sense of religion (which, because he was so witty and so bright, the dull have often called in question) there are many proofs in the present volume; though he had little patience with those who, out of admiration

for the anise and cumin of superfluous dogmas, would omit the weightier matters of education and broad Christian faith. So early as 1843, we find him endeavouring to press upon public attention that very system of national education which has recently been sanctioned by parliament. He made an offer to describe the Ragged Schools (of which he was a strenuous supporter) for the *Edinburgh Review*. 'I have told Napier,' he writes to Mr Forster, 'I will give a description of them in a paper on Education, if the *Review* is not afraid to take ground against the church catechism and other mere formularies and subtleties, in reference to the education of the young and ignorant. I fear it is extremely improbable it will consent to commit itself so far.' His fears were well founded; but the statements then made by him give me opportunity to add that it was his impatience of differences on this point with clergymen of the Established Church that had led him, for the past year or two, to take sittings in the Little Portland Street Unitarian chapel; for whose officiating minister, Mr Edward Tagart, he had a friendly regard, which continued long after he had ceased to be a member of his congregation. That he did so quit it, after two or three years, I can distinctly state; and of the frequent agitation of his mind and thoughts in connection with this all-important theme, there will be other occasions to speak. But upon essential points he had never any sympathy so strong as with the leading doctrine and discipline of the Church of England; to these, as time went on, he found himself able to accommodate all minor differences; and the unswerving faith in Christianity itself, apart from sects and schisms, which had never failed him at any period of his life, found expression at its close in the language of his will. In all disturbing fancies, the book that seemed to help him most was the *Life of Arnold*. 'I respect and reverence his memory,' he writes, 'beyond all expression; every sentence that you quote from it' [the *Life*] 'is the text-book of my faith.' Another objection that has been urged against Dickens is, that his works have shewn little learning; nor, indeed, had he learning, in its strictest sense, to shew; but he was a great reader, both of French and English literature, and if his study of the latter is not very manifest in his books, it should be remembered that his exceptional originality made him necessarily more independent of such aid than other writers. Of contemporary authors he was singularly appreciative; very slow to censure, and unhesitating in his praise. His eye ranged over the whole English world of letters as it moved, and seldom did any promise of greatness, far less any proof of it, escape him. 'Nothing interested him more than successes won honestly in his own field, for in his large and open nature there was no hiding-place for little jealousies.' On the first appearance of the 'Scenes of Clerical Life' in *Blackwood*, he writes to Mr Forster: 'Do read them. They are the best things I have seen since I began my course.'

And as he praised, so he was praised—not on the 'claw me, claw thee' principle, but by critics compared with whom the small literary puppy-dogs who have been lately barking at this dead lion, are small indeed—by Jeffrey, by Sydney Smith, by Thackeray—generously, grandly, and without stint. Of the *American Notes* (with the

publication of which this second volume of Mr Forster's begins), Lord Jeffrey writes: 'You have been very tender to our sensitive friends beyond sea, and my whole heart goes along with every word you have written. I think that you have perfectly accomplished all that you profess or undertake to do, and that the world has never yet seen a more faithful, graphic, amusing, kind-hearted narrative.' Of the *Christmas Carol*, the same great critic writes: 'Blessings on your kind heart! You should be happy yourself, for you may be sure you have done more good by this little publication, fostered more kindly feelings, and prompted more positive acts of beneficence than can be traced to all the pulpits and confessionals in Christendom since Christmas 1842.' And again: 'Who can listen,' exclaimed Thackeray, 'to objections regarding such a book as this? It seems to me a national benefit, and to every man or woman who reads it a personal kindness.'

These noble acknowledgments of Dickens' genius, from men themselves inferior in genius only to himself, may well be contrasted with the stinted and tepid praise which it is the fashion of nowadays journalists to mete out to it.

There was one thing about Charles Dickens to the full as remarkable as his genius—namely, his buoyant spirits, which we verily believe were never higher in any man, nor ever lasted so long. What other Paterfamilias, on such a depressing occasion as the birth of a fifth child, could have accepted an invitation to dinner at Richmond (it was from Macclise, Stanfield, and Forster) in such terms as these: 'DEVONSHIRE LODGE, Seventeenth of January, 1844. FELLOW-COUNTRYMEN! The appeal with which you have honoured me awakens within my breast emotions that are more easily to be imagined than described. Heaven bless you! I shall indeed be proud, my friends, to respond to such a requisition. I had withdrawn from Public Life—I fondly thought for ever—to pass the evening of my days in hydropathical pursuits and the contemplation of virtue. For which latter purpose, I had bought a looking-glass.—But, my friends, private feeling must ever yield to a stern sense of public duty. The Man is lost in the Invited Guest, and I comply. Nurses, wet and dry; apothecaries; mothers-in-law; babbies; with all the sweet (and chaste) delights of private life; these, my countrymen, are hard to leave. But you have called me forth, and I will come. Fellow-countrymen, your friend and faithful servant, CHARLES DICKENS.' And yet besides the arrival of No. 5, there was at this time a serious weight oppressing him in the falling of the sale of *Chuzzlewit*, which had just been published. The forty and fifty thousand purchasers of *Pickwick* and *Nickleby*, the sixty and seventy thousand of the *Old Curiosity Shop* and *Barnaby Rudge*, had fallen to little over twenty thousand. It was true the sale rose somewhat on Martin's announcement at the end of the fourth number that he would go to America; but the highest circulation at any time reached in the issue of this book was three-and-twenty thousand.* This was a terrible disappointment to the author. 'You know,' he writes in bitterness to his friend, 'as

well as I that I think *Chuzzlewit* in a hundred points immeasurably the best of my stories. That I feel power now more than I ever did. That I have! a greater confidence in myself than I ever had. That I *know*, if I have health, I could sustain my place in the minds of thinking men, though fifty writers started up to-morrow. But how many readers do *not* think! How many take it upon trust from knaves and idiots, that one writes too fast, or runs a thing to death! How coldly did this very book go on for months, until it forced itself up in people's opinion, without forcing itself up in sale. If I wrote for forty thousand Forsters, or for forty thousand people who know I write because I can't help it, I should have no need to leave the scene. But this very book warns me that if I *can* leave it for a time, I had better do so.'

Perhaps that which gives the keenest edge to this disappointment was an unfortunate hint dropped by one of his publishers, Messrs Chapman and Hall, with respect to alteration in their arrangements with him, should his popularity be on the wane. The suggestion was, to say the least of it, premature, and it stung Dickens to the quick. 'I am so irritated,' he writes, 'so rubbed in the tenderest part of my eyelids with bay-salt, that a wrong kind of fire is burning in my head, and I don't think I *can* write. I am bent upon paying Chapman and Hall *down*; and when I have done that, Mr Hall shall have a piece of my mind.' From that moment he began to contemplate transferring his business connections from that firm to Messrs Bradbury and Evans. The results of the sale of the *Christmas Carol* confirmed him in this resolve. Its immediate success had been prodigious. 'The first edition of six thousand copies was sold the first day, and on the 3d of January 1844 he wrote to me that "two thousand of the three printed for second and third editions are already taken by the trade." But a very few weeks were to pass before the darker side of the picture came. "Such a night as I have passed!" he wrote to me on Saturday morning, the 10th of February. "I really believed I should never get up again, until I had passed through all the horrors of a fever. I found the *Carol* accounts awaiting me, and they were the cause of it. The first six thousand copies shew a profit of £230! And the last four will yield as much more. I had set my heart and soul upon a Thousand, clear. What a wonderful thing it is that such a great success should occasion me such intolerable anxiety and disappointment! My year's bills, unpaid, are so terrific, that all the energy and determination I can possibly exert will be required to clear me before I go abroad; which, if next June come and find me alive, I shall do." The total profit on the sale of 15,000 received by Dickens was only £726; but it is fair to quote Mr Forster's remark that the truth really was, as to all the Christmas stories issued in this form, that the price charged, while too large for the public addressed by them, was too little to remunerate their outlay; and when in later years he put forth similar fancies for Christmas, charging for them fewer pence than the shilling required for these, he counted his purchasers, with fairly corresponding gains to himself, not by tens, but hundreds of thousands. In 1865, for instance, the sale of *Doctor Marigold's Prescriptions* reached 250,000 in the first week.

* Its sale since has ranked next after *Pickwick* and *Copperfield*.

However, he now exchanged his business firm, and entered into an agreement with Messrs Bradbury and Evans (June 1844), by which, upon advance made to him of £2800, he assigned to them a fourth share of whatever he might write during the ensuing eight years. Having thus given hostages to the profession of literature, he was henceforth bound to it; else it is most curious how other callings had at various times run in his mind. At one period in his life, he had resolved upon being an actor, and a better one, in many important respects, never stepped the stage than he afterwards shewed himself to be. In a letter written in 1845, in relation to certain projected amateur theatricals, which afterwards came to a good deal, he thus refers to that episode of his youth: 'See how oddly things come about! When I was about twenty, and knew three or four successive years of Mathews's At Homes from sitting in the pit to hear them, I wrote to Bartley, who was stage-manager at Covent Garden, and told him how young I was, and exactly what I thought I could do; and that I believed I had a strong perception of character and oddity, and a natural power of reproducing in my own person what I observed in others. There must have been something in the letter that struck the authorities, for Bartley wrote to me, almost immediately, to say that they were busy getting up the *Hunchback* (so they were!), but that they would communicate with me again in a fortnight. Punctual to the time, another letter came: with an appointment to do anything of Mathews's I pleased, before him and Charles Kemble, on a certain day at the theatre. My sister Fanny was in the secret, and was to go with me to play the songs. I was laid up, when the day came, with a terrible bad cold and an inflammation of the face; the beginning, by-the-by, of that annoyance in one ear to which I am subject at this day. I wrote to say so, and added that I would resume my application next season. I made a great splash in the Gallery soon afterwards; the *Chronicle* opened to me; I had a distinction in the little world of the newspaper, which made me like it; began to write; didn't want money; had never thought of the stage, but as a means of getting it; gradually left off turning my thoughts that way; and never resumed the idea. I never told you this, did I? See how near I may have been to another sort of life. This was at the time when I was at Doctors' Commons as a shorthand writer for the proctors. And I recollect I wrote the letter from a little office I had there, where the answer came also. It wasn't a very good living (though not a *very* bad one), and was wearily uncertain; which made me think of the Theatre in quite a business-like way. I went to some theatre every night, with a very few exceptions, for at least three years: really studying the bills first, and going to where there was the best acting: and always to see Mathews whenever he played. I practised immensely (even such things as walking in and out, and sitting down in a chair): often four, five, six hours a day: shut up in my own room, or walking about in the fields. I prescribed to myself, too, a sort of Hamiltonian system for learning parts; and learned a great number. I haven't even lost the habit now, for I knew my Canadian parts immediately, though they were new to me.

Even so late as 1845, Dickens seems seriously to

have contemplated (perhaps from the example of Scott) having two strings to his bow, another and more certain calling than that of an author, for we find him communicating with a leading member of the government to ascertain what chances there might be for his appointment, upon due qualification, to the *paid magistracy of London!* Imagine 'the Inimitable' (as he humorously termed himself) becoming a 'beak,' and dealing out justice to real life 'Artful Dodgers,' perhaps in that very Bow Street where he first studied the genus. However, he was at this time conceiving a new book, and at such periods he had 'fancies'—much as ladies have when in an interesting condition—which may account for this eccentric notion. In this same year (1845) it was proved he had made a serious mistake in even digressing from his position as a novelist to that of newspaper editor. He had already written 'leaders' for the *Chronicle*, which had made a great sensation, and the proprietors of the paper had tempted him by extraordinary prices—even to the extent of ten guineas for each article—to continue such contributions. His business qualifications were undeniable. Never was a more painstaking, careful, methodical man than Charles Dickens, while his energy was something marvellous. It was supposed by many, therefore, that the combination of these great gifts could not fail—upon the principle of his own receipt for the acquisition of Chinese Metaphysics, 'look out *China*, and look out *Metaphysics* in the *Encyclopædia*, and then combine your information'—to make an admirable newspaper editor. The *Daily News* was therefore started under his government, the brief history of which is narrated in the two following sentences: 'A little note written,' before going home, 'at six o'clock in the morning of Wednesday, January 21, 1846, to tell me they had "been at press three-quarters of an hour, and were out before the *Times*," marks the beginning; and a note written in the night of February 9th, to say that "tired to death, and quite worn out," he had just resigned his editorial functions.' This and a certain drama to which reference was made in Mr Forster's first volume, were the only two fiascos in Dickens' triumphant career. In Italy, he soon forgot that *Daily News*, which to him, indeed, had been a Daily Nuisance.

It could be literally said of some of Charles Dickens' works that they were the result of 'inspiration.' At Genoa, for instance, when the idea of a new Christmas story is simmering in his mind, but as yet without definite shape, he is dreadfully worried by the clang and clash of its steeples, which, he complains, make his ideas spin round and round, till they lost themselves in a whirl of vexation and giddiness, and dropped down dead. Yet only two days later comes a letter from him in which not a syllable is written but this quotation: 'We have heard THE CHIMES at midnight, Master Shallow;' wherefrom his friend at once understood that he had discovered what he wanted. 'It's a great thing to have my title,' writes he afterwards, 'and see my way to work the Bells. Let them clash upon me now from all the churches and convents in Genoa; I see nothing but the old London belfry I have set them in.'

In London, he had no such difficulties, for a walk through its streets by night was ever an unfailing source of literary suggestion to him;

without these favourite night-walks, he felt 'dumb-founded.' 'I can't help thinking of the boy in the school class whose button was cut off by Walter Scott and his friends. Put me down on Waterloo Bridge at eight o'clock in the evening, and let me roam about as long as I like, and I would come home, as you know, panting to go on.' In the country and abroad, he missed that great human heart with which his own ever beat in such unison and sympathy.

He 'brought an eye for all he saw,' however, everywhere. What a graphic description is this, for instance, of an Italian inn: 'It is a great thing—quite a matter of course—with English travellers to decry the Italian inns. Of course you have no comforts that you are used to in England; and travelling alone, you dine in your bedroom, always. Which is opposed to our habits. But they are immeasurably better than you would suppose. The attendants are very quick; very punctual; and so obliging, if you speak to them politely, that you would be a beast not to look cheerful, and take everything pleasantly. I am writing this in a room like a room on the two-pair front of an unfinished house in Eaton Square: the very walls make me feel as if I were a brick-layer distinguished by Mr Cubitt with the favour of having it to take care of. The windows won't open, and the doors won't shut; and these latter (a cat could get in between them and the floor) have a windy command of a colonnade which is open to the night, so that my slippers positively blow off my feet, and make little circuits in the room—like leaves. There is a very ashy wood-fire, burning on an immense hearth which has no fender (there is no such thing in Italy); and it only knows two extremes—an agony of heat when wood is put on, and an agony of cold when it has been on two minutes. There is also an uncomfortable stain in the wall, where the fifth door (not being strictly indispensable) was walled up a year or two ago, and never painted over. But the bed is clean; and I have had an excellent dinner; and without being obsequious or servile, which is not at all the characteristic of the people in the North of Italy, the waiters are so amiably disposed to invent little attentions which they suppose to be English, and are so light-hearted and good-natured, that it is a pleasure to have to do with them.'

Again, when at Lausanne, he had set up for use of his wife and children an odd little one-horse carriage, made to hold three persons sideways, so that they should avoid the wind always blowing up or down the valley; and he thus describes its droll behaviour when it takes him out to dinner: 'It can't be easily turned; and as you face to the side, all sorts of evolutions are necessary to bring you "broad-side to" before the door of the house where you are going. The country houses here are very like those upon the Thames between Richmond and Kingston (this, particularly), with grounds all round. At Mr Cerjat's we were obliged to be carried, like the child's riddle, round the house and round the house, without touching the house; and we were presented in the most alarming manner, three of a row, first to all the people in the kitchen, then to the governess who was dressing in her bedroom, then to the drawing-room where the company were waiting for us, then to the dining-room where they were spreading the table, and finally to the hall where we were got

out—scraping the windows of each apartment as we glared slowly into it.'

His intense benevolence caused him at Lausanne to concern himself greatly with the Asylum for the Blind at that place, of which he gives many interesting particulars; but what to our mind shews his tenderness of heart still more (since he had at least the usual sensitiveness of the author's calling) was the silence he maintained on the occasion of a certain dreadful mistake made at this time by one who illustrated his Christmas book, lest he should wound the artist's feelings. In the *Battle of Life*, Leech made the mistake of supposing that Michael Warden had taken part in the elopement, and actually introduces his figure with that of Marion! 'Nobody made remark upon it, and there the illustration still stands; but any one who reads the tale carefully will at once perceive what havoc it makes of one of the most delicate turns in it.' Yet Dickens (whom it annoyed beyond measure) never complained of it. Beside his personal regard for Leech, he had the heartiest admiration for his genius, and wrote an essay on it, which it is interesting to compare with Thackeray's upon the same subject. It contains one observation which strikes us as being especially noteworthy. 'If we turn back to a collection of the works of Rowlandson or Gilray, we shall find, in spite of the great humour displayed in many of them, that they are rendered wearisome and unpleasant by a vast amount of personal ugliness. . . . Leech is the very first Englishman who (as a caricaturist) has made Beauty a part of his art.'

In all his works, Dickens seems to have taken counsel with his biographer during their progress, and in some cases, to have even altered them in deference to his opinion. A curious instance of this took place in *Dombey and Son*. It was the author's original intention to kill Paul (the most popular juvenile portrait, not excepting even Tiny Tim, that Dickens ever drew) earlier in the story; but at his friend's intercession, he spared him for another number. His own design, too, was to shew Walter Gay gradually falling into idleness, dishonesty, and ruin; but on remonstrance being made, he alters the Book of Fate: 'I see it will be best as you advise. . . . I am far from sure that it' [the projected course] 'could be wholesomely carried out after the interest Walter has acquired.' The idea, however, took subsequent shape in the character of Richard Carstone in *Bleak House*. The success of *Dombey* was prodigious, and its profits so much in excess of what had been expected from the new publishing arrangements,* that from that date (1847) all his embarrassments connected with money were brought to a close. This was fortunate; for, to his generous soul, to forbear to give was ever a pain to him, and genuine indeed was his own expressed estimate of the value of worldly wealth: 'No man,' said he, 'attaches less importance to the possession of money, or less disparagement to the want of it, than I do.'

Thus, then, we leave him, in growing prosperity, and still in vigour of mind and body—albeit he was by no means free from the disorders to which

* 'Deducting the hundred pounds a month paid six times, I have still to receive £2220, which I think is tidy. Don't you?'

flesh is heir; and await the third and concluding volume from Mr Forster's hand. It is a common observation that this gentleman has too much confined his volumes to the relations between their subject and himself, to the exclusion of other intimate associates of our great humorist. But it is undeniable that Charles Dickens had a stronger attachment to John Forster than to any other man. So early as 1846 (besides numberless expressions of his affection throughout their correspondence) he writes these noteworthy words: *Shall I leave you my life in MS. when I die? There are some things in it that would touch you very much, and that might go on the same shelf with the first volume of Holcroft's.* If proof indeed were needed of the extraordinary sympathy between Dickens and his biographer, it would be in the power of the writer of the present notice to supply it. In acknowledging a volume written by the latter some twenty years ago, and called the *Foster Brothers*, Dickens spells the word 'Forster,' and apologises for it in the postscript on the ground that his head is always full of his friend Forster. And again, but a little before his death, when writing upon a subject which greatly stirred his feelings, he signs himself, instead of his own name, and as though self were actually lost sight of in the associations with his friend: 'Yours affectionately, JOHN FORSTER.'

STAR-SHOWERS AND COMETS.

A FEW years ago the thought dawned on astronomers that comets and star-showers are somehow connected—that they may, in fact, be only different manifestations of the same thing. The conjecture is fast advancing to be an accepted opinion, and has received a strong confirmation in the remarkable display of meteors that took place on the evening of the 27th November last. The nature of star-showers, and of shooting-stars in general, has for some time been pretty well understood. We have been gradually forced to give up the notion of empty interplanetary spaces. Whatever may be the case with the vast regions that lie beyond the solar system, it is becoming clear that, besides the larger visible planets, the whole space in which they move is crowded with smaller dark bodies careering round the sun—'pocket-planets,' as Humboldt calls them. Their presence is made known by their entering our atmosphere and therein becoming visible, and by some of them even falling to the earth. They are of all sizes, from a few grains to many tons. As to their composition, they do not make us acquainted with any elementary substances that we did not know before, but the proportions and the texture are different from terrestrial products. Metallic iron and compounds of silica are predominating ingredients; some masses have fallen consisting of as much as 95 per cent. of iron with a certain quantity of nickel.

When such a body enters our atmosphere, its own motion, combined with the motion of the earth, gives it an immense relative velocity—a velocity on an average of about thirty miles a second. The friction thus occasioned by dashing against the

particles of the air soon raises the outside to a white heat; the molten or vaporised surface flows off, leaving a blazing train behind, and after a longer or shorter career the body is exhausted—burnt out and extinguished. The larger masses, known as fire-balls, often explode with a noise like that of cannon, and sometimes the fragments of these explosions fall to the earth as aerolites. But these are exceptions; by far the greater number never reach the earth, except in the shape of the impalpable powder to which combustion reduces them. It is these smaller bodies which are burnt up in the higher regions of the atmosphere that constitute the falling or shooting stars properly so called. Their height above the earth is on an average seventy miles at the moment they burst into sight, and about fifty miles when they disappear.

It has been calculated that of meteors bright enough to be visible to the naked eye in a clear moonless night, the numbers that enter our atmosphere daily cannot be less than seven and a half millions; and if we include those that would be visible in a telescope, the calculation would exceed four hundred millions. As there is no reason to believe that the region in which our earth moves is more thickly beset with meteoric bodies than other parts of the solar domain, and as the space swept through by the earth in a day is a mere point compared with the whole extent of that domain, the total number of these bodies that must exist around the sun is beyond conception. The hundreds of millions yearly burnt up in our atmosphere, and the ashes of which add, it is estimated, one thousand tons weight to our earth in three years, will never be missed!

Besides the stray meteors, of which half-a-dozen, more or less, may be seen any clear night by watching the sky for an hour, there occur every now and then brilliant displays, known as star-showers or meteoric showers. It has long been observed that some of those showers are periodical, recurring on the same day of the year, either annually or after a period of years. The most remarkable thing about a star-shower is, that all the bodies composing it seem to come from the same limited region of the sky. Those that appear in the centre of the space blaze out and die away without seeming to move; the farther the appearance of a meteor from the centre, the longer and more divergent is its path. The paths proceed from the centre in all directions like rays, and hence it is called the *radiant* point of the shower. This radiation of the paths, however, is a mere appearance, due to perspective. The bodies are really moving parallel to one another; but the one that is coming directly towards the spectator has its path reduced to a point, while the paths of the others all round are seen more or less foreshortened, and all converging backwards towards the vanishing-point.

From a careful study of these flights of shooting-stars, it has been established beyond doubt that meteoric bodies are not scattered uniformly throughout interplanetary space, but that there are groups, or clouds of them, the members of each group all pursuing the same track or orbit; and that a star-shower is caused by the earth passing through one of those tracks. If the meteors are distributed over the whole ring or track, there will be more or less of a display every time the earth comes to the same

point of her orbit, as in the case of the August meteors; if they are gathered into a group in one part of the track, they can only manifest themselves at intervals of a period of years, depending on the length of their time of revolution compared with that of the earth. Thus the November meteors, as they are called—which make their appearance about the middle of the month, and of which there was such a remarkable display in 1866—occur in maximum splendour only every thirty-three years. Already about a hundred periodic star-showers have been observed. Each has its own radiant point in the sky; and it is becoming customary to name the shower after the constellation in which its radiant point is situated. The November meteors are called the Leonides, from the constellation Leo. A hundred distinct star-showers imply a hundred distinct meteor-streams. It is only those streams, however, with which our earth comes in contact that can ever become known to us; and when we consider how small is the chance of a small ring like the earth's orbit coming in contact with any other possible ring that might be drawn round the sun within his domain, we are lost in trying to conceive the number of meteor systems that may, and probably do, exist.

The periodical recurrence of a meteoric shower implies that the orbit of the bodies causing it has a fixed position in the solar system; and with regard to two at least—the November and the August meteors—astronomers have succeeded in determining the position and dimensions of the orbit with something like exactness. So far as has yet been gone in this matter, meteoric orbits are exceedingly eccentric or elongated, and are inclined at all angles to the plane of the ecliptic; resembling in these respects the orbits of comets. But more than this, it has been discovered (1866-67) that the two meteoric orbits above mentioned coincide exactly with the orbits of two comets that had been previously determined without regard to meteors. The August meteors are found to follow the track of the great comet of 1862; and the orbit of the November system is the same as that of a telescopic comet discovered in 1866. The same relation would seem to exist between the orbits of other noted meteor systems and other known comets; and thus the thought is suggested, that every comet has its train of meteoric bodies following in its wake, and that perhaps every meteoric cloud has, or may have had, its comet.

At this point the peculiar significance of the meteoric display of the 27th November last becomes apparent. The small comet known as that of Biela, having a period of $6\frac{1}{2}$ years, and whose orbit at one point approaches that of the earth, was seen, during its visit in 1846, to separate into two distinct comets, which disappeared moving side by side. On the return of the comet in 1852, the distance between the two nuclei had greatly increased, and the divorce seemed complete. Since that time, nothing has been seen of Biela's comet, although it ought to have paid us several visits, one of them being due towards the end of 1872. But the newly discovered connection between comets and meteors naturally suggested the idea of watching the time when the earth was passing nearest to the orbit of the comet, in the hope that a shower of meteors might be witnessed. Professor A. S. Herschel, one of the leading observers and speculators in this

field, had some time before given the hint to astronomers to watch the sky during the last week of November and the first week of December. The result fully answered the anticipation. A great number of witnesses have described the brilliancy of the display, and all agree in fixing the radiant point near the star *Gamma*, in Andromeda. The fall lasted from 6 P.M. till 10.30 P.M.; and one observer counted at one time as many as one hundred and twenty meteors in a minute, and calculates the probable number that actually fell at upwards of fifty thousand. Professor Herschel was himself an observer of the shower, and in his account of it published in the *Times*, thus points out its importance: 'The return of Biela's comet having this year, as on a few former occasions, disappointed the expectations of astronomers, the possibility of its substance having become distributed into the form of a meteoric stream has recently led to a suggestion that a star-shower of some brightness might be reasonably anticipated to occur on the night of the earth's passage through the point of its nearest approach to the comet's orbit, and, in the absence of any recent observations of Biela's comet, a date about the 29th of November was assigned to the probable occurrence of a meteor shower. Its actual appearance two days before the anticipated date confirms the supposition of a connection between the missing comet and the present unusually bright meteoric shower, and forms another instance of the many proofs, already derived from observations of shower meteors, of the identity of their origin with that of comets.'

What the exact nature of the connection is—whether the comet produces the meteors, or the meteors cause the appearance called a comet—no one seems able to say. No theory yet given out will answer at all points. Regarding the light of comets, it seems to be established that the coma shines by reflected light, but that the nucleus is self-luminous; and, moreover, that its light is that of a white-hot gas—a fact that could not have been known before the days of the spectroscope. But how is it to be conceived that an insignificant body of matter like that of a comet could continue incandescent for ages? One way of accounting for this is the assumption, that the core of the nucleus consists of a great crowd of solid bodies of all sizes rushing on in close proximity, jostling, hurtling, and dashing against one another, and thus producing such a heat that they are kept enveloped in a cloud of their own vaporised substance. On this assumption, the coma and tail would consist of the small fragments thrown to a distance by the collisions, and lighted up by the rays of the sun. A seemingly fatal objection to this theory is, that the tail does not always follow in the wake of the nucleus, as it ought to do; when passing the sun, it projects at right angles to the orbit, and in retreating, it goes before the nucleus. Since the application of the spectroscope to astronomy, there has been no good opportunity of testing its powers in analysing the tails of comets. When the next conspicuous comet appears, it will find itself in the presence of an instrument that will force it to tell its secret.

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